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EXAMINER

ZACHARIA, RAMSEY E

ART UNIT PAPER NUMBER

1773

DATE MAILED: 07/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/086,845

Applicant(s)

ABUSLEME ET AL

Examiner

Ramsey Zacharia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-3 and 6-16 is/are rejected.
7) ☒ Claim(s) 4 and 5 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

2. Claims 1-3, 6-9, and 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abusleme et al. (EP 1,038,914 A1) in view of Stoeppelmann (U.S. Patent 5,869,157).

Abusleme et al. teach a multilayer article that may be used as a fuel hose comprising a layer of a fluorinated polymer composition and a layer of hydrogenated polymer (paragraph 0022). Suitable hydrogenated polymers include thermoplastic polymers, such as polyamides (paragraph 0023). The fluorinated polymer composition comprises a copolymer of ethylene with tetrafluoroethylene and/or chlorotrifluoroethylene modified with an acrylic monomer, such as n-butylacrylate, that reads on the monomer of formula (a) in instant claim 1 (paragraphs 0009 and 0011). The copolymer comprises 10-70 mole% ethylene, 30-90 mole% tetrafluoroethylene and/or chlorotrifluoroethylene, and 0.1-30 mole% of acrylic monomer (paragraph 0010).

Regarding claim 9, the tube of Abusleme et al. is taken to be in the form of sheath-core fibers since it has inner (i.e. core) and outer (i.e. sheath) layers.

Abusleme et al. do not teach the presence of a layer comprising diamines and a polyamide having an amount of -NH₂ end groups in the range of 40-300 µeq/g. However, Abusleme et al. do teach a tube comprising a layer of a fluoropolymer and a layer of polyamide.

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Stoeppelmann is directed to an adhesion promoter that bonds fluoropolymers to polyamides for use in multilayer tubes (column 2, lines 33-41). In one embodiment the adhesion promoter comprises a polyamide having an -NH_2 end group concentration of $50 \mu\text{eq/g}$ and a diamine, such as decyldiamine or dodecyldiamine (column 4, lines 1-14). In an alternative embodiment, the adhesion promoter comprises the diamine and a polyamide having an equal amount of -NH_2 and -COOH end groups (column 4, lines 20-26). The amount of -NH_2 groups in this alternative embodiment should be about $35 \mu\text{eq/g}$ (total number of end groups = -NH_2 end groups + -COOH end groups = $20 \mu\text{eq/g} + 50 \mu\text{eq/g} = 70 \mu\text{eq/g}$; if the polymer has an equal amount of -NH_2 and -COOH end groups it should have $35 \mu\text{eq/g}$ of each). The diamine is present in an amount of 0.25-2 wt% (column 4, lines 12-14).

One of ordinary skill in the art would be motivated to use the adhesion promoter of Stoeppelmann in the article of Abusleme et al. to tightly adhere the fluoropolymer and polyamide layers together.

3. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abusleme et al. (EP 1,038,914 A1) in view of Stoeppelmann (U.S. Patent 5,869,157) as applied to claim 1 above, and further in view of Krause et al. (U.S. Patent 5,958,532).

Abusleme et al. taken in view of Stoeppelmann teach all the limitations of claim 10, as outlined above, except for the present of an inner layer that is made conductive by the incorporation of graphite and/or carbon black.

Krause et al. is directed to a fluoropolymer hose that may be used in a fuel line (column 1, lines 15-17). The hose comprises two fluoropolymers layers (column 2, lines 23-29). The

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inner fluoropolymer layer has electrostatic discharge resistance, allowing electrostatic charge generated during the flowing of fuel to be carried to the ground (column 3, lines 52-63). The most preferred fluoropolymer for the inner fluoropolymer layer is ETFE sold under the Tefzel[®] trademark (column 3, line 64-column 4, line 20). Tefzel[®] ETFE fluoropolymers are composed of about 40-70 % ethylene and 30-60% tetrafluoroethylene.

One of ordinary skill in the art would be motivated to add an inner fluoropolymer layer of ETFE having electrostatic discharge resistance to the fuel hose of Abusleme et al. to yield a safer product by allowing electrostatic charge generated during use to be carried to the ground.

Allowable Subject Matter

4. Claims 4 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The reasons for indicating allowable subject matter was put forth in the Office action mailed 14 August 2003.

Response to Arguments

5. Applicant's arguments filed 07 June 2005 have been fully considered but they are not persuasive.

The applicant argues that Stoeppelmann teaches away from the claimed invention by disclosing that only a combination of a diamine and a polyamide having an excess of amino end groups yields optimum adhesion values and that adequate adhesion cannot be achieved after coextrusion when a polyamide balanced in amino end groups is used together with a diamine.

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This is not persuasive for the following reasons. First, with respect to independent claim 1, this claim requires an amount of amino end groups that fall within the range taught by Stoeppelmann and may contain diamines as evidenced by the explicit recitation in claim 2 that the polyamide of layer B) contains one or more diamine. Furthermore, the examiner disagrees with the applicants' interpretation of Stoeppelmann. The sections of Stoeppelmann cited in the response filed 07 June 2005 merely teach that adequate adhesion cannot be achieved directly after coextrusion. Stoeppelmann then goes on to state that adhesion (with either a polyamide having an excess of amino groups without a diamine or a polyamide having balanced end groups with a diamine) is achieved following an annealing process or storage (see column 4, lines 19-26). Clearly Stoeppelmann teach that either (a) a polyamide having an excess of amino groups without a diamine or (b) a polyamide having balanced end groups with a diamine may be used to achieve adequate adhesion provided that the multilayer article is subjected to a post-treatment process (i.e. annealing or storage) after coextrusion. Even assuming *arguendo* that using an adhesion promoter comprising polyamide having an excess of amino groups and a diamine is the preferred or optimal embodiment, Stoeppelmann explicitly teaches that an adhesion promoter comprising a polyamide having balanced end groups with a diamine may be used provided that the appropriate post-treatment is conducted and a known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use. See MPEP 2123 for further discussion on the suitability of the broad disclosure of a reference as prior art.

The applicants argue that there is no motivation to combine the references because Abusleme et al. discloses that adhesion between their layers is accomplished without using a tie-

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layer and therefore one skilled in the art would not have been motivated to use an intervening adhesion promoter to promote adhesion between the already tightly adhered layers of Abusleme et al.

This is not persuasive because, while Abusleme et al. teach that a tie-layer is not necessary, there is nothing in Abusleme et al. to illustrate that the inclusion of an intermediate layer would render the article of Abusleme et al. unsatisfactory for its intended purpose. Abusleme et al. teach that the technologies for obtaining laminates having a tie-layer are more complex due to the introduction of an additional layer, but that such technologies are known in the art (see page 2, paragraph 0006). Therefore, the addition of a tie-layer may increase the cost of the laminate, but it would not render the laminate unsatisfactory for its intended purpose. The fact that a combination may be more expensive does not mean that a person of ordinary skill in the art would not make the combination because the added expense associated with the addition of an adhesive layer would not discourage one of ordinary skill in the art from seeking the increased bonding strength expected to arise therefrom.

The applicants argue that the transitional phrase "consisting essentially of" in present claim 1 regarding layers A) and layer B) excludes the presence of the crosslinking agent in A) and diamine in B) in considerable or effective amounts as required by the multilayers of the cited references. The applicants contend that the phrase "consisting essentially of" means that if any additional components, such as crosslinking agents and/or diamines are present, they are in meaningless or negligible amounts as impurities.

This is not persuasive for the following reasons. First, the applicants interpretation of the transitional phrase "consisting essentially of" is at odds with the conventionally accepted

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definition of the phrase as understood by the intellectual property community in the United States of America. The applicants are requested to review the discussion in MPEP 2111.03 regarding transitional phrases. Since the disclosure as originally filed does not explicitly define the phrase "consisting essentially of", the phrase is properly given its plain meaning as outlined in MPEP 2111.03. The inclusion of more than a negligible amount of crosslinkers in layer A) or diamines in layer B) cannot be said to affect the basic and novel characteristics of the invention because the applicants have already contended that such material may be used as optional components on the lines 1-8 of page 8 of the Remarks filed 25 January 2005.

Moreover, the applicants' interpretation of the transitional phrase "consisting essentially of" is at odds with their own claims. For example, independent claim 1 recited that layer B) consists essentially of a polyamide while dependent claim 2 recites that layer B) further contains one of more diamines. If the phrase were to have the meaning attributed to it by the applicants, claim 2 would be improperly adding a diamine to a composition restricted to only polyamides having an amount of -NH₂ end groups in the range of 40-300 µeq/g and impurities.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period


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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney, can be reached at (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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